

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1-19 and 22 are pending in this application. Claims 1 and 19 are independent. The remaining claims depend, directly or indirectly, from claim 1.

Rejection under 35 U.S.C. § 102

Claims 1-3, 7-9, 13-15, 19 and 22 stand rejected under 35 U.S.C. § 102(e) as being anticipated by US Patent Publication No. 2002/0027786 ("Nakazawa *et al.*"). For at least the reasons set forth below, this rejection is respectfully traversed.

An objective of the present invention is to provide a power controller for operating lighting systems that require substantially constant DC power (*see, e.g.,* paragraph [0009]). Referring to the detailed description by way of example, a microcontroller 51 is used to select a required duty cycle for the switch 54 (Fig. 5) to control application of this source voltage to the coil such that the input power level is substantially constant. Specifically, the microcontroller 51 has stored instructions to maintain a constant power delivered from the DC source 50 to the primary coil 55 of the transformer, and accordingly into the load 60 (*see, e.g.,* paragraph [0041]).

Accordingly, claim 1 recites, "a switch means adapted to control application of the source voltage to the coil", "means adapted to select a duty cycle for the switch such that the input power level is substantially constant", and "means adapted to control operation of the switch

such that this selected duty cycle is effected." Claim 19 also recites, "directing an input from a *direct current supply* to a means for effecting transition into an output, wherein said means includes means to effect frequent switching", and "wherein a mark-space ratio of the switching is modifiable such that the input power is held substantially constant."

The Examiner interprets the control circuit 65 of Figs. 8-9 in Nakazawa *et al.* to be the claimed "means adapted to select a required duty cycle for the switch such that the input power level is substantially constant" and the coupler 50 as "means adapted to control operation of the switch such that this selected duty cycle is effected."

The control circuit 65 in Nakazawa *et al.* turns ON and OFF the transistor Tr1 depending on the input current flowing through the current sense resistor R1. The sense circuit 70 senses the voltage across resistor R0, and the output is fed as an input to the PWM comparator 67 via the coupler 50, and the PWM comparator 67 drives the drive circuit 68 to turn ON the transistor Tr1 based on a comparison of voltage levels between output voltage values of the error amplifier ERA21 and sense circuit 70 and a voltage value of the output from the triangular wave oscillator 66 (*see, e.g.*, Fig. 9 and paragraphs [0093] and [0094] of Nakazawa *et al.*).

Thus, by measuring a voltage drop due to a current flowing through resistor R1, the *output voltage is kept constant* by controlling the ON time of transistor Tr1 and thereby, adjusting the input current (*see, e.g.*, paragraphs [0015] and [0098] of Nakazawa *et al.*). The duty cycle is therefore adjusted using the feed-back control of the coupler 50 (*see* paragraph [0015]) to keep a *voltage constant*. The coupler transmits the output voltage of the sense circuit (70, Figs. 9-10) into the PWM comparator 67 of the control circuit 65. In contrast, the microcontroller 51 in Fig. 5 of the current specification, with the aid of the output 53, controls the duty cycle (*see, e.g.*, paragraphs [0040] and [0041] of the current specification) such that the

input power is kept constant. The microcontroller calculates the duty cycle according to a formula that exploits the relationship between output power and input voltage, i.e., a *square relationship*.

Therefore, although Nakazawa *et al.* and the current invention share a common goal of constant power, the control circuit 65 and the coupler 50 in Nakazawa *et al.* functionally serve to effect a duty cycle such that a *voltage* is constant. Hence, Nakazawa *et al.* do not disclose a means adapted to select a required duty cycle for the switch such that the input power level is substantially constant as required by claims 1 and 19.

Additionally, Nakazawa *et al.* show the requirement of monitoring power (current and voltage) and not voltage alone. Paragraph [0015], *for example*, suggests the adjustment of input current by controlling the duty cycle of transistor Tr1 (Fig. 9) for constant output voltage. As discussed above, the control circuit turns ON and OFF the transistor Tr1 based on a *current* flowing through the resistor R1. Paragraphs [0062], and [0065] also suggest monitoring a *power* value. In contrast, the present invention only requires the need to monitor an input *voltage* (see, e.g., paragraph [0040]). Accordingly, the power source to the power controller is a DC voltage source as recited in claim 1 (see also, e.g., paragraph [0039]). Therefore, Nakazawa *et al.* do not show or suggest voltage monitoring alone as required by the current invention.

In view of above, Nakazawa *et al.* fail to show or suggest the invention as recited in independent claims 1 and 19. Thus, independent claims 1 and 19 are not anticipated by Nakazawa *et al.* Dependent claims are also not anticipated for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Further, it is to be noted that an advantage of the present invention is also to dispense with the need for dissipative current sensing resistors (*see, e.g.*, paragraph [0041]) as employed in Nakazawa *et al.*

Rejection under 35 U.S.C. §103

Claims 4-6, 10-12, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakazawa *et al.*

Nakazawa *et al.*, as discussed above, do not show or suggest at least the above limitations of independent claim 1. Thus, independent claim 1 of the present application is patentable over Nakazawa *et al.* Claims 4-6, 10-12, and 16, directly or indirectly, depend on independent claim 1. Therefore, claims 4-6, 10-12, and 16 are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591, Reference 04465/024001.

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Respectfully submitted,

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